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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/552,098	04/19/2000	Russell E. Malz Jr.	0014-PC(142-97)	3066

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EXAMINER

ANTHONY, JOSEPH DAVID

ART UNIT	PAPER NUMBER
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1714

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DATE MAILED: 03/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/552,098

Applicant(s)

Examiner

Group Art Unit

1714

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on 4/19/00 as F.D.S.
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-11 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-11 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s) 4
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

DETAILED ACTION

Election/Restrictions

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1. Restriction to one of the following inventions is required
10 under 35 U.S.C. 121:

I. Claims 1-11, drawn to a liquid antiozonant mixture,
classified in class , subclass .

II. Claims 12-24, drawn to a rubber composition,
classified in class 524, subclass 81+.

15 2. The inventions are distinct, each from the other because of the
following reasons:

Inventions I and II are related as combination and
subcombination. Inventions in this relationship are distinct if
20 it can be shown that (1) the combination as claimed does not
require the particulars of the subcombination as claimed for
patentability, and (2) that the subcombination has utility by
itself or in other combinations (MPEP § 806.05(c)). In the
instant case, the combination as claimed does not require the
25 particulars of the subcombination as claimed because rubber
composition has a separate utility as an antiozonant to prevent

5 ozone contamination. The subcombination has separate utility
such as a tire tread or sidewall.

3. Because these inventions are distinct for the reasons given
above and have acquired a separate status in the art as shown by
10 their different classification, restriction for examination
purposes as indicated is proper.

Because these inventions are distinct for the reasons given
above and have acquired a separate status in the art because of
15 their recognized divergent subject matter, restriction for
examination purposes as indicated is proper.

4. During a telephone conversation with attorney M. Carmen on
09/17/01 a provisional election was made with traverse to
20 prosecute the invention of Group I, claims 1-11. Affirmation of
this election must be made by applicant in replying to this
Office action. Claims 12-24 are withdrawn from further
consideration by the examiner, 37 CFR 1.142(b), as being drawn
to a non-elected invention.

5 Applicant is reminded that upon the cancellation of claims
to a non-elected invention, the inventorship must be amended in
compliance with 37 CFR 1.48(b) if one or more of the currently
named inventors is no longer an inventor of at least one claim
remaining in the application. Any amendment of inventorship
10 must be accompanied by a petition under 37 CFR 1.48(b) and by
the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier
communications from the examiner should be directed to Robert D.
15 Harlan whose telephone number is (703) 306-5926. The examiner
can normally be reached on Mon-Fri, 10 AM - 8 PM.

If attempts to reach the examiner by telephone are
unsuccessful, the examiner's supervisor, David W. Wu can be
20 reached on (703) 308-2450. The fax phone numbers for the
organization where this application or proceeding is assigned
are (703) 872-9559 for regular communications and (703) 872-9559
for After Final communications.

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Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 is deemed to be indefinite because many of the listed species for the paraphenylenediamine compounds are species that are outside the scope of the general formula given for the paraphenylenediamine compounds as set forth in independent claim 1. The definition of the R¹ and R² groups of the paraphenylenediamine general formula, as set forth in claim 1, does not encompass where R¹ and R² can be an aryl group such as a phenyl group. As such, paraphenylenediamine compounds of claim 2, such as N-1,3-dimethylbutyl-N'-*phenyl*-p-phenylenediamine, are not species within the definition of the general formula as set forth in independent claim 1.

7. IMPORTANT REMARKS ON APPLICANTS PENDING CLAIMS ARE MADE
HERE.

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Applicant's invention is drawn to a liquid antiozonate mixture, see independent claim 1. Applicant defines the liquid mixture by way of a process of making the mixture from its reactants. Many of the dependent claims give reaction molar ratios of the reactants and the catalyst used in the reaction. Nevertheless, it must be clearly noted that the courts have constantly declared that the process in a product-by-process type claim is given little if any weight. As such, for the following prior-art rejections it does not matter if the prior-art actually discloses applicant's claimed method of making the product since applicant's claims are not drawn to a method of making. Rather the prior-art only needs to disclose or suggest the claimed final reaction product to render applicant's claims anticipated and/or obvious. One other important fact must be pointed out and that is that nowhere in applicant's disclosure does applicant bother to reveal exactly what the reaction product is that is made by the reaction method. As such, it is not known exactly where on the paraphenylenediamine compound is the alkylation taking place (e.g. on the nitrogen atoms, on the phenyl ring etc.) The reaction seems to be a condensation type reaction but even this is left unsaid by applicant's disclosure. Since applicant has not disclosed what reaction product(s) is actually being claimed any arguments by applicant that the applied prior-art does not anticipate or render obvious applicant's claimed product will be considered moot since applicant has not disclosed what the claimed product is that is being claimed.

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Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-11 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Merten et al. U.S. Patent Number 4,900,868 or Merten et al. EP 0 084 527 or Budd et al. U.S. Patent Number 3,542,691 or D'Sidocky et al. U.S. Patent Number 4,463,191 or Symon U.S. Patent Number 4,304,939.

The U.S. and EP Merten et al patents both teach a process for the producing liquid N,N'disubstituted paraphenylene diamine mixtures by sequential reductive alkylation with a plurality of ketones in sequence using a Group VIII catalyst such as platinum containing catalyst, see column 2, line 67 to column 3, line 6. The ketones can be acetone and/or other ketones that

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encompass applicant's ketones of claim 3, see column 1, line 58 to column 2, line 52 of '868. The products produced by the patents' disclosed process are disclosed to be useful as antiozonates for diene rubber, see column 6, lines 42-53 of '868. Applicant's claims are deemed to be anticipated over the examples.

Budd et al discloses a one step process for the preparing a liquid N-alkyl-N'-phenyl-para-phenylenediamine mixtures of N-4-methyl-2-pentyl-N'-phenyl-para-phenylenediamine (MPDA) and N-5-methyl-2-hexyl-N'-phenyl-phenylenediamine (MHDA) by reacting a mixture of 4-methyl-2-pentanone, 5-methyl-2-hexanone and at least one nitrogen containing compound which may be para-aminodiphenylamine in the presence of a Group VIII catalyst, see abstract, and column 2, lines 10-30. The taught liquid mixtures are disclosed to be useful as antiozonates for unsaturated polymers, see column 2 lines 32-39. Applicant's claims are deemed to be anticipated over the examples.

D'Sidocky et al discloses a one stage process for the reductive alkylation of aromatic nitro-containing compounds with ketones or aldehydes using a Group VIII catalyst such as palladium complex to produce compounds such as N-phenyl-N'-alkyl-p-phenylenediamine, see the abstract. The disclosed ketones and aldehydes encompass applicant's claimed ketones and aldehydes. The taught product is useful as an antiozonate for rubbers, see column 10, lines 16-24. Applicant's claimed invention is deemed to be anticipated over Example 7.

Symon discloses preparation of N-phenyl-N-alkylphenylenediamine by reductive alkylation of a nitrogen-containing diphenylamine and a ketone in the presence of a Group VIII catalyst,

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such as platinum catalyst, see the abstract, the ketones can be acetone and other ketones that encompass applicant's claimed ketones. The taught N-phenyl-N-alkylphenylenediamine product is useful as an antioxidant for rubbers, see column 2, lines 66-68. Applicant's claims are deemed to be anticipated over the Examples.

In the alternative, the U.S. and EP Merten et al, Budd et al, D'Sidocky et al, and Symon patents may differ from applicant's claimed invention in that it is unclear if these said patents directly teach (i.e. by way of an example) a liquid substituted or unsubstituted paraphenylenediamine product that directly reads on applicant's claimed product since applicant's claimed product is unknown since it is not directly disclosed by applicant. As such, applicant's claimed invention is deemed to be obvious over the liquid antiozonate/antioxidant substituted or unsubstituted paraphenylenediamine products produced by the process disclosed by the said individual patents since applicant's product is produced by a process that is very similar to the processes taught/disclosed by said patents.

Finally, applicant's claim 11 might further differ from the patents' taught (i.e. by way of an example) liquid substituted or unsubstituted paraphenylenediamine products in that none of the patents' examples seem to use platinum sulfide as the specific catalyst species. It would have been obvious to one having ordinary skill in the art to use platinum sulfide as the catalyst species since such catalysts are deemed to come with the broad disclosure of the applied patents to Group VIII catalyst which are useful for their inventions. Applicant's specification also has no showing of any

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superior or unexpected results that may arise from the use of platinum sulfide as the catalyst species.

11. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horst U.S. Patent Number 1,906,935.

Horst discloses the production of antioxidants for rubbers and their use thereof. The process comprises performing a condensation reaction by reacting an aliphatic ketone, such as acetone, with a secondary amino compound, such as p-amino-di-phenyleneamine, with an aldehyde, such as formaldehyde, using a catalyst, such as a Group VIII catalyst, such as zinc chloride, see the abstract, page 2, line 97 to page 3, line 49, page 4, lines 115-127, and the examples. Horst differs from applicant's claimed invention in that there is not a direct teaching (i.e. by way of an example) to where a secondary amino compound is used as a reactant that is actually a species found within applicant's general formula for the paraphenylenediamine compounds.

It would have been obvious to one having ordinary skill in the art to use the broad disclosure of Horst as motivation to actually use a secondary amino compound species found within applicant's claimed general formula for the paraphenylenediamine compounds since such species are directly disclosed as useful reactants according to Horst's invention, see page 2, lines 5-13.

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Finally, applicant's claim 11 might further differ from the patents' taught (i.e. by way of an example) liquid substituted or unsubstituted paraphenylenediamine products in that none of the patents' examples seem to use platinum sulfide as the specific catalyst species. It would have been obvious to one having ordinary skill in the art to use platinum sulfide as the catalyst species since such catalysts are deemed to come with the broad disclosure of the applied patents to Group VIII catalyst which are useful for their inventions. Applicant's specification also has no showing of any superior or unexpected results that may arise from the use of platinum sulfide as the catalyst species.

Prior-Art Cited But Not Applied

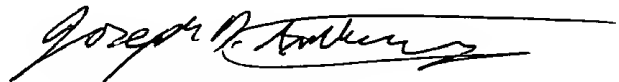
12. Any prior-art reference which is cited on FORM PTO-892 but not applied, is cited only to show the general state of the prior-art at the time of applicant's invention.

Examiner Information

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Joseph D. Anthony whose telephone number is (703) 308-0446. This examiner can normally be reached on Monday through Thursday from 7:35 a.m. to 6:00 p.m. in the eastern time zone. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on (703) 306-2777. The group **(non-after final)** FAX machine number is (703) 872-9310. The group **(after final)** FAX machine number is (703)

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872-9311. Unofficial correspondence transmitted by FAX must be marked "DRAFT". All other papers received by FAX will be treated as Official communications and cannot be immediately handled by the Examiner. Any inquiry of a general nature or relating to the status of this application should be directed to the receptionist whose telephone number is (703) 308-0651. The receptionist is located on the 8th floor of Crystal Plaza 3 (e.g. CP-3) and will be the welcome point for all visitors to the building.



Joseph D. Anthony
Primary Patent Examiner
Art Unit 1714

3/22/03